

# New neotropical species of the genus *Holotrochus* and the new genus *Mimotrochus*

(Coleoptera, Staphylinidae)

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## Abstract

The neotropical *Holotrochus* material of the Biosystematics Research Institute, Ottawa, Canada and of the Museum of Comparative Zoology, Mass., U.S.A. was studied. 22 new neotropical species of the genus *Holotrochus* and one new genus *Mimotrochus* with two new species could be found. Additionally remarks to some species could be given.

## Introduction

From Dr. Campbell, Biosystematics Research Institute (BRI), Ottawa, Canada and Dr. Newton, Museum of Comparative Zoology (MCZ), Cambridge, Mass. U.S.A. I got their collections of neotropical *Holotrochus* species for determination. In these collections I found 22 new species of the genus *Holotrochus* and one new genus *Mimotrochus* with two new species. I thank Dr. Campbell and Dr. Newton for their kindness to place their collections to my disposal. The high number of new species makes it reasonable to accomplish the already existing table of neotropical *Holotrochus* species (IRMLER 1981).

## Key to neotropical *Holotrochus* and *Mimotrochus* species

1. Pronotum strongly emarginate before base, small species of about 3 mm length, hairy with very short elytra and very small eyes (not more than 20 omatides) . . . . . 2  
     . . . . . *Mimotrochus* n. gen.
- Sides of pronotum parallel or slightly emarginate and than longer species of 4–5 mm length, eyes normal, if small eyes then body hairless and pronotum not emarginate . . . . . 3  
     . . . . . *Holotrochus* Er. 1840
2. 15 to 20 omatides . . . . . *M. pecki* n. sp.  
   – 2 omatides . . . . . *M. columbinus* n. sp.
3. Elytra short, no longer than pronotum . . . . . 4  
   – Elytra longer than pronotum . . . . . 8

4. Eyes very small, in dorsal aspect covered by a supra ocular carina; abdomen without hairs . . . . . 7  
 – Eyes larger, distinctly visible in dorsal aspect; head and pronotum polished and very finely punctate; abdomen hairy . . . . . 5
5. Antennae long, 3rd segment long, twice as long as the 2nd . . . . . *H. columbiensis* n. sp.  
 – Antennae short, 3rd segment short, scarcely longer than the 2nd . . . . . 6
6. Elytra as long as the pronotum (Mexico) . . . . . *H. centralensis* n. sp.  
 – Elytra slightly shorter than the pronotum (Brasil) . . . . .  
 . . . . . *H. brasiliensis* Bernh. & Schub. 1910
7. Abdomen polished and punctate; eyes very small, with about 10 omatidia . . . . .  
 . . . . . *H. neotropicus* Irmeler 1981  
 – Abdomen dull and nearly impunctate; eyes larger with about 50 omatidia . . . . .  
 . . . . . *H. sigridae* Irmeler 1981
8. Larger species about 5.0–8.0 mm; anterior edge of pronotum margined; body totally hairless or the abdomen with single hairs laterally; one species is only 4.8 mm but has two distinct depressions on the last sternite in male . . . . . 9  
 – Smaller species (smaller than 5.0 mm) or the anterior edge of pronotum not margined or the abdomen totally hairy or the last sternite of male without distinct depression . . . . . 24
9. Abdomen totally hairless and finely punctate . . . . . 10  
 – Abdomen laterally distinctly punctate and hairy . . . . . 17
10. Pronotum with ground sculpture, dull or slightly shining but never polished . . . . . 11  
 – Pronotum polished, without a trace of ground sculpture . . . . . 16
11. Ground sculpture of pronotum feeble, transverse or longitudinally reticulate, slightly shining . . . . . *H. durus* Sharp 1876  
 – Pronotum with distinct netlike ground sculpture, dull . . . . . 12
12. Smaller species of 6.0 mm length . . . . . 13  
 – Longer species of 7.0 to 8.0 mm length . . . . . 14
13. Microsculpture of pronotum fine, slightly shining, depression of 6th visible sternite of male with X-shaped structure . . . . . *H. campbelli* n. sp.  
 – Microsculpture of pronotum distinct, dull, depression of 6th visible sternite of male rounded . . . . . *H. convexus* n. sp.
14. Pronotum widest behind middle . . . . . *H. lundgreni* n. name  
 . . . . . syn. *H. opacus* Irmeler 1981  
 – Pronotum widest before the middle . . . . . 15
15. Parameres of aedeagus shorter than middle lobe, the 6th visible tergite of male deeply emarginate . . . . . *H. emarginatus* n. sp.  
 – Parameres of aedeagus longer than middle lobe, 6th visible tergite not deeply emarginate . . . . . *H. obausi* Wendeler 1955
16. Pronotum with very fine and sparse punctation, widest behind middle . . . . .  
 . . . . . *H. pseudodurus* Irmeler 1981  
 – Pronotum with dense and coarse punctation, widest before middle . . . . . *H. nani* Irmeler 1981
17. Pronotum with very obsolete microgranulate groundsculpture . . . . . 18  
 – Pronotum without groundsculpture, but distinct micropunctation . . . . . 19
18. Head with netlike microsculpture . . . . . *H. susannae* n. sp.

- Head without microsculpture, shining . . . . . *H. strigipennis* Bernh. 1921
19. Clypeus with coriaceous punctation . . . . . *H. franckei* (Wendeler 1955)
- Clypeus shining or with transverse microsculpture . . . . . 20
20. Small species of 4.8 mm length, 6th visible sternite of male with two depressions . . . . .  
 . . . . . *H. mexicanus* n. sp.
- Larger species of at least 5.5 mm length . . . . . 21
21. 6th visible sternite of male with a depression . . . . . 22
- 5th and 6th visible sternite of male with depressions . . . . . 23
22. Larger 6.0 mm, apical part of aedeagus broad and distinctly longer than parameres . . . . .  
 . . . . . *H. rufopygus* Sharp 1882
- Smaller, 5.5 mm, clypeus with transverse microsculpture, dull, apical part of aedeagus  
 short . . . . . *H. plaumanni* n. sp.
23. Apical part of aedeagus curved and rounded at the top . . . . . *H. glabriventris* Bernh. 1921
- Apical part of aedeagus reflexed and with an acute tip . . . . . *H. mariannae* n. sp.
24. Body totally covered with hairs; labrum short and transverse . . . . . 25
- Only the abdomen covered with hairs or body totally hairless; labrum longer, transverse  
 or quadrate . . . . . 27
25. Surface of head and pronotum with netlike ground sculpture, slightly shining . . . . .  
 . . . . . *H. subtilis* Sharp 1876
- Surface of head and pronotum with a scalelike ground sculpture, dull; larger 3.0–3.7 mm 26
26. Red or rufotestaceous; elytra wider than long; middle segments of antennae transverse,  
 smaller 3.0–3.5 mm . . . . . *H. pubescens* Sharp 1876
- Black or piceous; elytra longer than wide; middle segments of antennae quadrate; larger  
 3.5–3.7 mm . . . . . *H. amazonicus* Irmeler 1981
27. Lateral margin of pronotum shortly elevated before front angles; anterior edge of  
 pronotum not margined . . . . . 28
- Lateral margin of pronotum reach the front angles; anterior edge of pronotum margined  
 or not margined . . . . . 29
28. Clypeus deflected from forehead, thus head appears truncated between antennae . . . . .  
 . . . . . *H. picescens* Sharp 1882
- Clypeus continous to forehead, therefore head prolonged between antennae . . . . .  
 . . . . . *H. obstrusus* n. sp.
29. Lateral margin of pronotum elevated before front angles, continuing to the front edge,  
 front angles therefore not margined . . . . . 30
- Lateral margin of pronotum parallel to side, ending at front angles or continuing to the  
 front margin . . . . . 31
30. Lateral margin of pronotum elevated at middle, continuing obliquely to front margin . .  
 . . . . . *H. lineatus* Irmeler 1981
- Lateral margin of pronotum elevated shortly before the front angles . . . . .  
 . . . . . *H. lineatocollis* n. sp.
31. Only abdomen distinctly hairy, with ground sculpture, dull . . . . . 32
- Body totally hairless or if abdomen carries some hairs it is shining . . . . . 46
32. Pronotum transverse,  $\frac{1}{4}$  wider than long; abdomen totally covered with long hairs . . . . . 33

- Pronotum more or less quadrate; abdomen with hairless midline . . . . . 37
33. Eyes distinctly projecting, smaller species of 3.6 mm length . . . . . *H. leticiae* n. sp.
- Eyes not projecting, longer species of at least 4.0 mm length . . . . . 34
34. Pronotum at basal angles with distinct depressions, margined at both sides; sides of pronotum rounded or reflexed before base . . . . . 35
- Pronotum at basal angles with flat depressions, margined only at outer side . . . . . 36
35. Pronotum distinctly punctate, sides emarginate before base; 4th segment of antennae longer than wide . . . . . *H. syntheticus* Sharp 1876
- Pronotum very obsoletely punctate, sides rounded; 4th segment of antennae quadrate . . . . . *H. laticollis* Bernh. 1908
36. Longer, 5.0 mm; sides of pronotum more or less parallel . . . . . *H. antennatus* Wendeler 1955
- Smaller, 4.0 mm; sides of pronotum more or less parallel but slightly emarginate at middle . . . . . *H. poundi* Blackwelder 1943
37. Antennae short and stout, 4th segment transverse . . . . . *H. blackwelderi* Irmeler 1981
- Antennae more slender, 4th segment more or less quadrate . . . . . 38
38. Smaller, 3.5 mm, pronotum with punctures of different size . . . . . *H. hanagarthi* Irmeler 1981
- Larger, 4.0–5.5 mm . . . . . 39
39. Larger species of 5.5 mm length . . . . . *H. simplex* Sharp 1882
- Smaller species of 4.1–4.6 mm length, which can only be differentiated by the structure of the aedeagus . . . . . 40
40. Middle lobe of aedeagus more or less straight, parameres broad . . . . . *H. latinotus* n. sp.
- Middle lobe of aedeagus abruptly elevated in the last upper third . . . . . 41
41. Upper third of the middle lobe of aedeagus rounded . . . . . 43
- Upper third of the aedeagus straight . . . . . 42
42. Hind angles of pronotum with distinct depressions . . . . . *H. convertus* n. sp.
- Hind angles of pronotum without depressions . . . . . *H. montepius* n. sp.
43. Parameres slender, middle lobe of aedeagus slender as well . . . . . *H. nationes* n. sp.
- Parameres and middle lobe of aedeagus stout . . . . . 44
44. Endophallus with a small broad spiral . . . . . *H. glabrinotus* n. sp.
- Endophallus with a small spiral basally and spines or a further narrow spiral apically . . . . . 45
45. Endophallus with two spines apically . . . . . *H. newtoni* n. sp.
- Endophallus with a broad spiral basally and a narrow spiral apically . . . . . *H. vianai* Bernh. 1939
46. Base of pronotum margined; elytra coriaceous, very feebly punctate; pronotum coarsely punctate . . . . . *H. marginatus* Sharp 1882
- Basal edge of pronotum not margined . . . . . 47
47. Pronotum with distinct or obsolete ground sculpture . . . . . 48
- Pronotum without a trace of ground sculpture, polished . . . . . 54
48. Larger species, 6.0 mm; head, pronotum and elytra with distinct netlike ground sculpture, dull . . . . . *H. volvulus* Er. 1840

- Smaller species, 3.5–4.5 mm, head and pronotum with obsolete ground sculpture; elytra coriaceous, slightly shining; 3rd segment of antennae only slightly longer than 2nd . . . . . 49
49. Clypeus with transverse reticulate ground sculpture, vertex polished . . . . . 50
- Clypeus dull, with netlike ground sculpture . . . . . 53
50. Eyes smaller with about 50 ommatidia; 4.0 mm . . . . . *H. smithi* Cameron 1913  
Eyes larger, with about 100 ommatidia . . . . . 51
51. Smaller, 3.5 mm; process of prosternum with an abruptly elevated process between coxae . . . . . *H. milleri* Irmeler 1981
- Larger, 4.5 mm . . . . . 52
52. Prosternum with abruptly elevated process between coxae . . . . . *H. geraldii* n. sp.  
– Prosternum with continuous process between coxae . . . . . *H. cylindrus* Er. 1840
53. Larger; 4.5 mm, pronotum densely punctate, ground sculpture less dense . . . . .  
. . . . . *H. centralis* Sharp 1882
- Smaller, 4.0 mm, pronotum feebly punctate and with dense ground sculpture . . . . .  
. . . . . *H. similis* Irmeler 1981
54. Larger, 4.0–4.5 mm; punctures on pronotum and abdomen distinctly finer than on elytra . . . . . *H. politus* Sharp 1882
- Smaller, 2.8–3.2 mm; elytra coriaceous or punctures of same size as on pronotum and abdomen . . . . . 55
55. 3rd segment of antennae longer than 4th and as long or longer than 2nd . . . . . 57
- 3rd segment of antennae as long as 2nd and 4th . . . . . 56
56. Small species of 2.5 mm length, abdomen with netlike microsculpture, only slightly shining, last tergite with truncated apex . . . . . *H. hyleae* n. sp.  
– Larger species of 2.8–3.2 mm, last tergite biforked, at least slightly emarginate . . . . .  
. . . . . *H. schubarti* Irmeler 1981
57. Clypeus with transverse netlike ground sculpture; 3rd segment of antennae as long as 2nd, 3.0 mm . . . . . *H. trinitatis* (Blackwelder 1943)
- Head polished, without ground sculpture, 3rd segment of antennae distinctly longer than 2nd . . . . . 58
58. Sides of pronotum distinctly emarginate before base . . . . . *H. pecki* n. sp.  
– Sides of pronotum rounded or straight . . . . . 59
59. Elytra with distinct and coriaceous punctation . . . . . 61
- Elytra feebly and not coriaceous punctate or with coriaceous ground sculpture and punctation very feebly and nearly invisible . . . . . 60
60. Elytra feebly punctate and without a coriaceous ground sculpture . . . . .  
. . . . . *H. minor* Fauv. 1863
- Elytra very feebly punctate and with a coriaceous ground sculpture . . . . .  
. . . . . *H. acromyrmicis* Bernh. 1920
61. Pronotum widest before middle, narrowed straight to base . . . . . 62
- Pronotum widest at middle . . . . . *H. inpai* Irmeler 1981
62. Hind angles of pronotum with flat depressions . . . . . *H. pumilius* Irmeler 1981
- Hind angles of pronotum without depressions . . . . . 63

63. Endophallus with a long straight basal part, only the last  $\frac{1}{4}$  with a spiral . . . . .  
 . . . . . *H. ingae* Irmeler 1981  
 – Endophallus with one broad spiral . . . . . *H. cerri* n. sp.

### Descriptions of new species and remarks

1. Durus-Group, with species (*durus*, *opacus*, *obausi*, *pseudodurus*, *nani*, *convexus*, *campbelli*, *emarginatus*) which resemble each other in large size (6–8 mm), dark color, pronotum margined at anterior edge, and body hairless.

#### *Holotrochus convexus* n. sp.

(Plate 1, Fig. 1)

Description: Length 6.0 mm. Head 0.5 mm long, 0.7 mm wide; antennae reddish brown, 2nd segment globular, 3rd segment conical, twice as long as the 2nd, the following segments strongly transverse, head black, the clypeus reddish, emarginate in the middle, labrum yellow, dull, with netlike microsculpture, eyes as long as the temples. Pronotum 0.9 mm long, 0.9 mm wide, black, apically and posteriorly reddish, with netlike microsculpture, dull laterally and apically margined, apically only slightly margined in the middle, widest at the anterior angles, straightly narrowed to the base, without punctures, epipleura polished, without microsculpture. Elytra 1.2 mm long, 1.0 mm wide, black, dull, with netlike microsculpture, with very sparse punctation, reddish on the disc, epipleura polished, without microsculpture, metasternum as well polished. Abdomen black, with distal part of tergites reddish, dull, with netlike microsculpture. Legs yellow. Male with two circular depressions on the 5th and 6th visible sternites, aedeagus (plate 1, fig. 1c).

Within the Durus-Group this species is related to *H. obausi* and *H. campbelli* by the microsculpture of the pronotum. *H. convexus* can be differentiated from *H. obausi* by its shorter length, but definitely only by the study of the aedeagus.

Holotype: male: El Yunque Sta. Luquillo Forest P. R. 6–9VII 1969, leg. H. & A. Howden.

The holotype is deposited in the Biosystematics Research Institute (B.R.I.), Ottawa, Canada.

#### *Holotrochus campbelli* n. sp.

(Plate 1, Fig. 2)

Description: Length 6.0 mm. Head 0.6 mm long, 0.8 mm wide, antennae reddish brown, 2nd segment globular, 3rd segment conical, twice as long as the 2nd, 4th and 6th segments quadrate, the following segments transverse; head black, slightly shining, with very feeble microsculpture, very finely and sparsely punctate, clypeus dull, with distinct ground sculpture of transverse meshes, eyes as long as the temples. Pronotum 1.0 mm

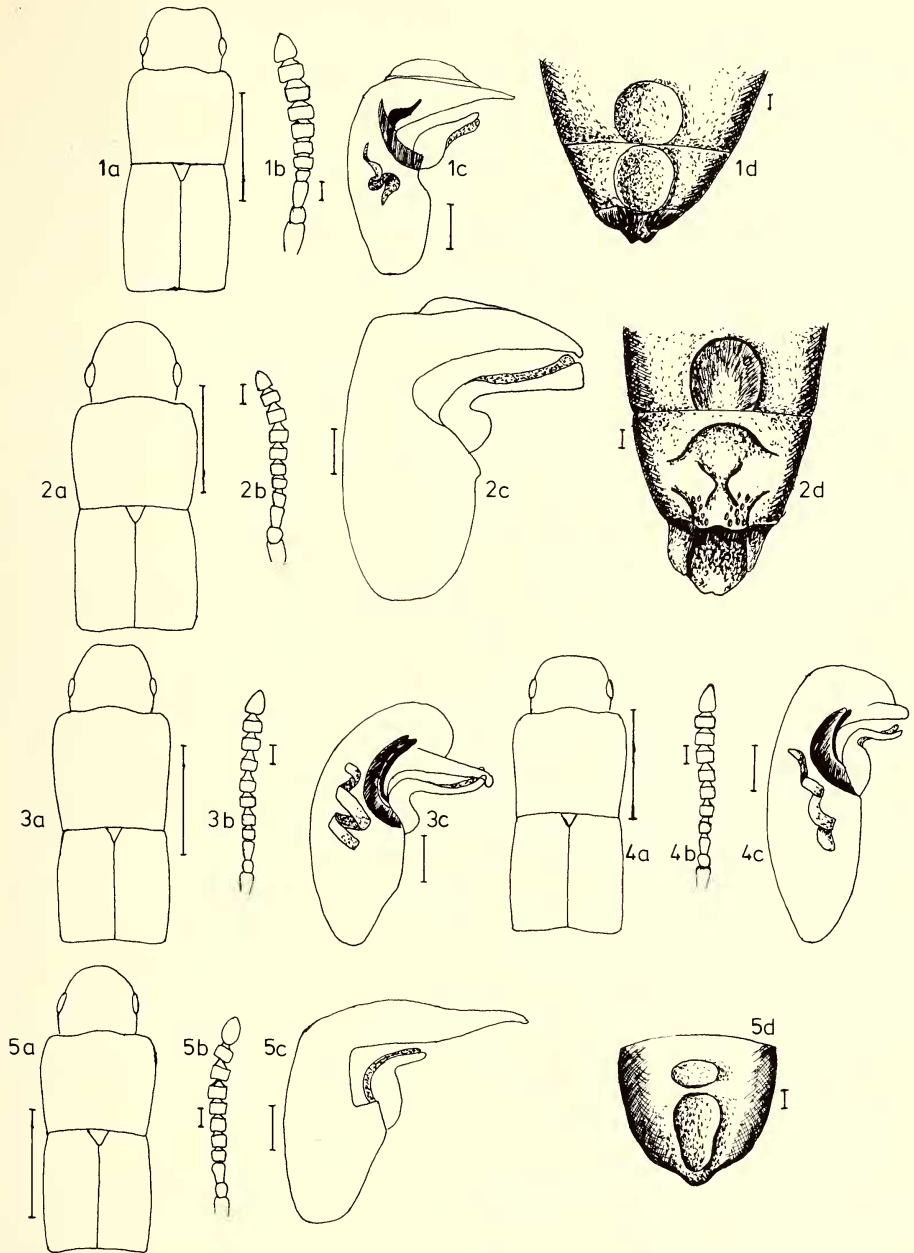


Plate 1: Fig. 1 *Holotrochus convexus*, fig. 2 *H. campbelli*, fig. 3 *H. susannae*, fig. 4 *H. plaumanni*, fig. 5 *H. mexicanus*, a) front body, b) antennae, c) aedeagus, d) last visible tergites of males (scale of a – 1 mm, scale of b, c, and d – 0.1 mm).

long, 1.2 mm wide, black, slightly reddish at the base, slightly shining, with netlike microsculpture, widest in the apical third, slightly narrowed to the apex and more strongly narrowed to the base, very feebly and sparsely punctate, epipleura polished, without microsculpture. Elytra 1.2 mm long, 1.2 mm wide, black, shining, laterally to the suture with distinct and slightly coriaceous punctation, laterally finely and sparsely punctate, epipleura polished, metasternum black, polished, impunctate. Abdomen black, slightly shining, with netlike microsculpture, tergites at the base densely and distinctly, at the apex very finely and sparsely punctate, 5th visible tergite apically reddish. Legs brown. Male with a circular depression on the 5th visible sternite and a very specific structure (Plate 1, Fig. 2d) on the 6th visible sternite, aedeagus (plate 1, fig. 2c).

Within the Durus-Group this species is similar to *H. obausi* and *H. convexus* by the microsculpture of the pronotum, which is however finer than on the related species. *H. campbelli* is therefore slightly shining, whereas *H. obausi* and *H. convexus* are dull.

Holotype: male: Colombia, Magdalena 3000', Campana 24 km S. St. Marta V-14-1973, leg. Campbell & Howden.

The type is deposited in B. R. I.

### ***Holotrochus emarginatus* n. sp.**

(Plate 2, Fig. 1)

Description: Length 8.0 mm. Head 0.7 mm long, 1.15 mm wide; antennae black, 2nd segment globular, 3rd segment conical slightly longer than the 2nd, 4th and 5th segment quadrate, 6th to 10th segments wider than long; labrum red, head black, dull, with netlike groundsculpture, punctation very fine and sparse, clypeus anteriorly emarginate; eyes as long as the temples, these with transverse netlike groundsculpture. Pronotum: 1.4 mm long, 1.7 mm wide; black, dull, with netlike microsculpture, punctation very fine and sparse, widest at the anterior edge, continuously narrowed to the base, at the hind angles a flat depression, anterior edge margined, epipleura polished. Elytra 1.75 mm long, 1.9 mm wide; black, dull, punctation very fine and sparse, microsculpture coriaceous, epipleura with netlike microsculpture, 5th visible tergite distally reddish, 6th visible tergite fork-shaped, deeply emarginate, distinctly punctate, without hairs. Legs reddish brown. Male with a flat egg shaped depression on the 5th visible sternite and a still flatter depression on the 4th visible sternite.

This species is similar to *H. obausi* due to the dull surface and the form of the pronotum, but distinctly distinguished by the aedeagus and the structure of the last abdominal segments. Male aedeagus plate 2, fig. 1c.

Holotype: 1 ♂: R. P. Panama Pr, Cerro Campana, Feb.–Mar. 1975 leg. J. F. Lawrence (ex rotting log).

Paratype: 1 ♂: Cerro Campana 3200', Feb. 1976, leg. A. Newton (under bark).

The types are deposited in the M. C. Z.



2. Rufopygus-Group (*rufopygus*, *strigipennis*, *glabriventris*, *susannae*, *plaumanni*, *mexicanus*, *mariannae*, *franckei*) which is similar to the Durus-Group in size (4.8–6.5 mm) and dark color, but differs by the laterally hairy abdomen.

**Holotrochus susannae n. sp.**

(Plate 1, Fig. 3)

Description: Length 5.0 mm. Head 0.5 mm long, 0.8 mm wide; antennae reddish brown, 2nd segment globular, 3rd segment conical, twice as long as the 2nd, 4th and 5th segments quadrate, the following segments transverse, head black, slightly shining, with netlike microsculpture, feeble and sparse punctation, eyes as long as the temples, these with distinct netlike microsculpture. Pronotum 0.9 mm long, 1.2 mm wide, black, the base reddish, punctation as feeble and sparse as on the head, slightly shining, microsculpture very feeble and with circular meshes, widest at the apical third, narrowed slightly to the base and more rounded to the anterior edge, laterally margined, apically only with a fine margin, epipleura polished. Elytra 1.0 mm long, 1.2 mm wide, black, laterally to the suture and apically reddish, punctures fine and sparse, microsculpture distinctly netlike, therefore more dull than the head and the pronotum, epipleura polished, metasternum with netlike microsculpture. Abdomen black, tergites distally reddish, with netlike microsculpture, slightly shining, laterally with sparse, yellow hairs, the 6th visible tergite also dorsally hairy. Legs reddish yellow. Male on the 6th visible sternite with a short process and an indistinct depression, aedeagus (plate 1, fig. 3c).

By the obsolete microgranulate ground sculpture of the pronotum similar to *H. strigipennis* Bernh. 1921. From this species and the remaining species of the Rufopygus-Group *H. susannae* can be differentiated by the netlike microsculpture of the head.

Holotype: male: Colombia, Mayda 3000', Campana 25 km S. St. Marta IV-29-1973, leg. Howden & Campbell.

Paratype: female: Colombia, Mayda 3000', Campana 25 km S. St. Marta, IV-29-1973, leg. Howden & Campbell.

Both types are deposited in the B. R. I.

**Holotrochus plaumanni n. sp.**

(Plate 1, Fig. 4)

Description: Length 5.5 mm. Head 0.5 mm long, 0.8 mm wide, antennae reddish yellow, 2nd segment globular, 3rd segment conical, 1½ times as long as the 2nd, 4th and 5th segments quadrate, the following segments transverse; head black, shining, the clypeus dull by the dense transverse undulate ground sculpture, finely and sparsely punctate, eyes as long as the temples, these with longitudinal reticulate microsculpture, dull. Pronotum 0.95 mm long, 1.15 mm wide, black, shining, reddish at the base, finely and more or less densely punctate, a smooth midline in the posterior half of the pronotum without punctures, very sparsely with feeble micropunctures, obsolete depression in the

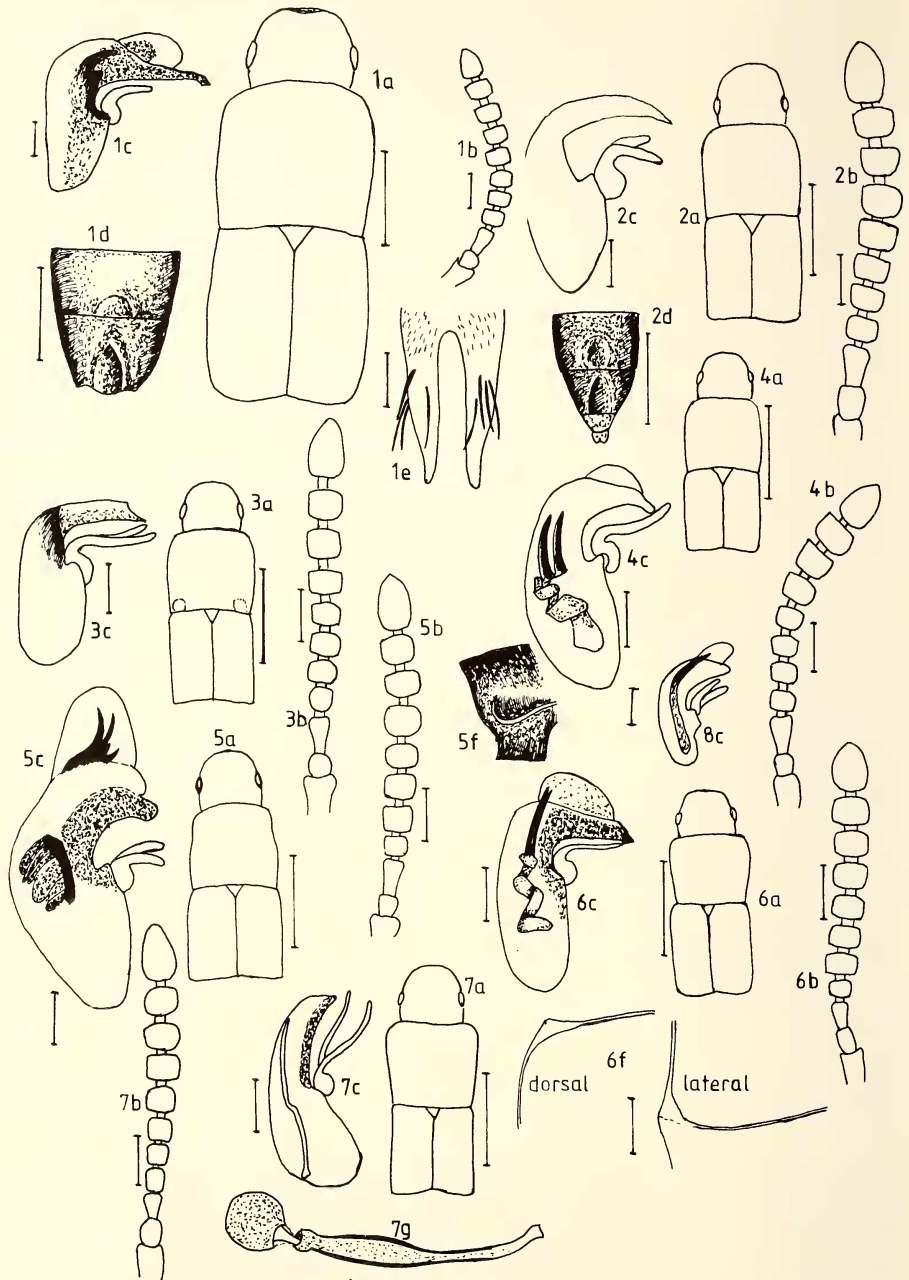


Plate 2: Fig. 1 *Holotrochus emarginatus*, fig. 2 *H. mariannae*, fig. 3 *H. convertus*, fig. 4 *H. newtoni*, fig. 5 *H. obstrusus*, fig. 6 *H. lineatocollis*, fig. 7 *H. politus*, fig. 8 *H. marginatus*, a) front body, b) antennae, c) aedeagus, d) last abdominal sternite, e) 7th visible abdominal tergite, f) lateral or dorsal view of pronotum, g) spermatheca (scale of a — 1 mm, scale of b to g 0.1 mm).

hind angles, laterally and apically margined, epipleura polished. Elytra 1.05 mm long, 1.15 mm wide, black, laterally to suture and apically reddish, punctures more or less fine and dense, partly coriaceous and therefore less shining than the pronotum, epipleura polished, metasternum with netlike microsculpture. Abdomen black, the 5th visible tergite reddish at the apex, with netlike ground sculpture, slightly shining, laterally with fine yellow hairs. Male with 6th visible sternite with an obsolete depression, aedeagus (plate 1, fig. 4 c).

This species can be differentiated from the further species of the Rufopygus-Group by the microsculpture of the clypeus. A definite determination, however, is only possible by the study of the aedeagus.

Holotype: male: Brazil, 300–500 m Nova Teutonia, 27 11' S, 52 23' W, VI 1972, leg. Plaumann.

Paratypes: 14 males, 12 females: Brazil 300–500 m, Nova Teutonia 27 11' S, 52,23' W, VI 1972 leg. Plaumann.

1 female: Brazil, Rio Azul 25 42' S, 50 46' W, X 1959, 1000 m, leg. F. Plaumann.

The types are deposited in the B. R. I.

### **Holotrochus mexicanus n. sp.**

(Plate 1, Fig. 5)

Description: Length 4.8 mm. Head 0.4 mm long, 0.7 mm wide; antennae brown, 2nd segment globular, 3rd segment conical, 1½ times as long as the 2nd, 4th and 5th segments quadrate, the following segments transverse; head black, shining, feebly and sparsely punctate, the clypeus with very fine transverse undulate ground sculpture, but shining, eyes as long as the temples, these with longitudinal microsculpture, dull. Pronotum 0.8 mm long, 1.0 mm wide, black, shining, with fine and sparse punctation, between the punctures with very fine micropunctures, laterally and apically margined, widest in the apical third, narrowed to both the apex and the base, epipleura polished. Elytra 1.0 mm long, 1.1 mm wide, black, laterally to the suture and apically reddish, punctation fine and sparse, with very fine micropunctures, therefore less shining than the pronotum, epipleura polished, metasternum impunctate, polished. Abdomen black, the 5th tergite dorsally reddish, with netlike microsculpture, therefore dull, laterally with fine yellow hairs. Legs reddish. Male: 6th visible sternite with a process and a distinct oval depression and a second transverse depression at the base, aedeagus (plate 1, fig 5 c).

Within the Rufopygus-Group *H. mexicanus* is similar to *H. glabriventris* also in the structure of the aedeagus, in particular the short parameres. *H. mexicanus*, however, is much shorter and the structure of the 6th visible sternite is different from *H. glabriventris*.

Holotype: male: Mexico, Montepio nr. Catemaco V. C. VI-19-1969, leg. Bright & Campbell.

Paratypes: 1 male and 3 females: Mexico, Montepio nr. Catemaco, V. C. VI-19-1969, leg. Bright & Campbell.

1 female: Mexico, Finca, San Carlos, M. pio, Matias Romero Oax., III-28-1968, leg. P. Reyes, M. Cabrera.

The types are deposited in the B. R. I.

Further specimen have been found in the M. C. Z. from Mexico: Oaxaca, Valle Nationale Aug. and Veracruz (Catamacas) Jul.

***Holotrochus mariannae* n. sp.**

(Plate 2, Fig. 2)

Description: Length 6.0 mm. Head 0.5 mm long, 0.8 mm wide; antennae dark brown, 2nd segment oval, 3rd conical, slightly longer than the 2nd, 4th to 5th segments quadrate, 6th to 10th segments wider than long; head black, polished, with fine and sparse punctation; eyes as long as the temples, these with transverse netlike microsculpture. Pronotum 0.9 mm long, 1.25 mm wide; black, base indifferently reddish, polished, punctation sparse and fine, with two types of punctures, the normal punctures and between these with very fine micropunctures, widest in the middle, slightly narrowed anteriorly and continuously narrowed posteriorly, anterior edge margined except a space in the middle, epipleura polished. Elytra 1.25 mm long, 1.25 mm wide; black, slightly shining, very fine and sparse punctures with coriaceous microsculpture, epipleura polished. Abdomen black, dull, with netlike microsculpture, the posterior edge of tergites indistinctly reddish, laterally with fine yellow hairs. Legs red. Male with a flat egg-shaped depression on the 6th visible sternite and a globular depression on the 5th visible sternite; aedeagus as on plate 2, fig. 2 c.

This species is very similar to *H. rufopygus* Sharp and *glabriventris* Bernh. and hardly to distinguish from them, but the structure of the aedeagus is obviously different from both species.

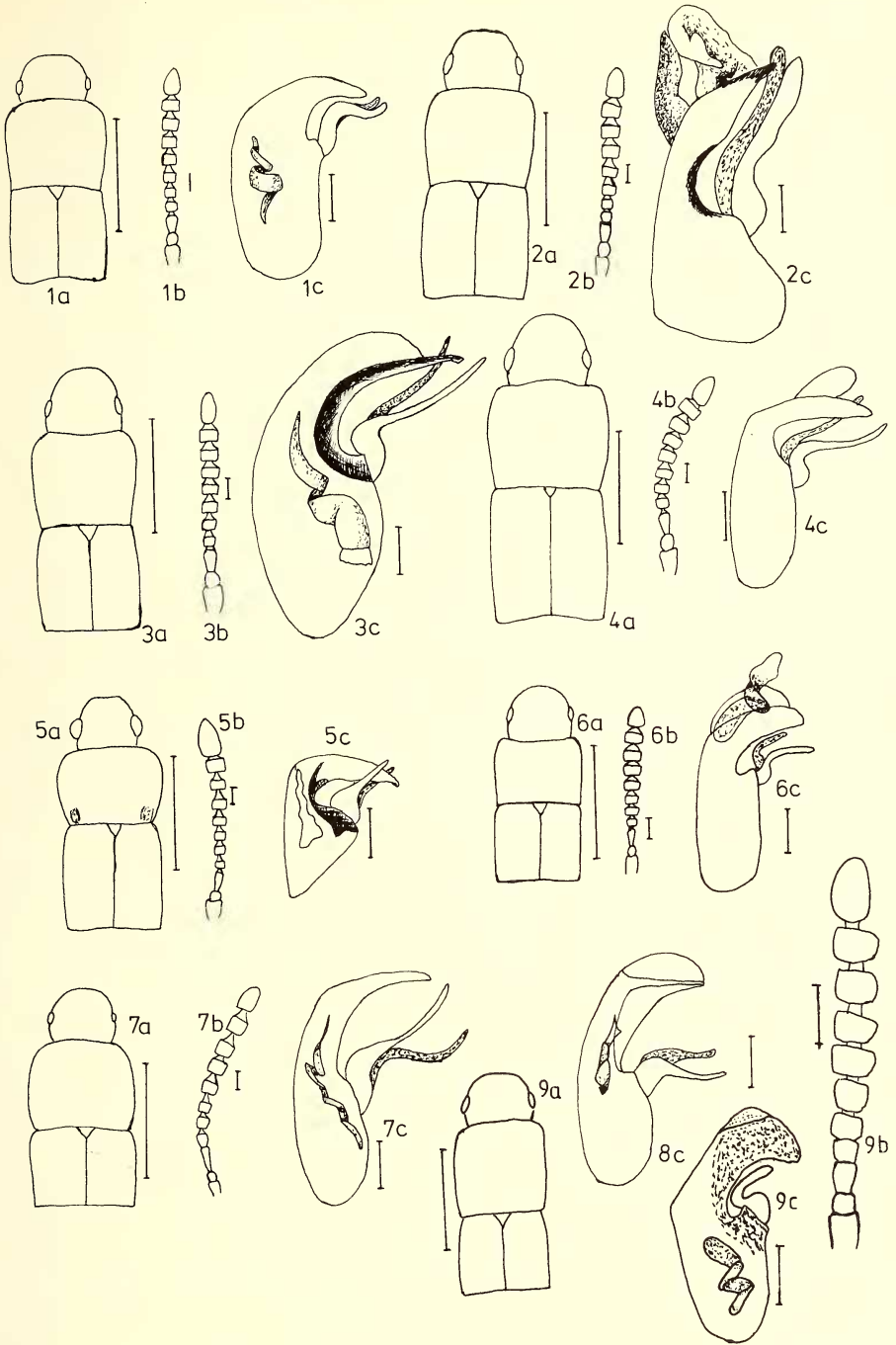
Holotype: 1♂: Panama: Chiriqui, El Mirador, 6000', Finca Collins, nr. Boquete VI 25. 1976, A. Newton and E. Vollrath collectors (under bark, rotting logs).

The holotype is deposited in the Museum of Comparative Zoology, Cambridge (U.S.A.).

3. Simplex-Group (*simplex*, *blackwelderi*, *hanagarthi*, *vianai*, *glabrinotus*, *latinotus*, *nationes*, *montepius*, *newtoni*, *convertus*) of size 3.0–5.5 mm, all with pronotum margined at anterior edge, hairy abdomen with hairless midline.

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Plate 3: Fig. 1 *Holotrochus glabrinotus*, fig. 2 *H. latinotus*, fig. 3 *H. nationes*, fig. 4 *H. montepius*, fig. 5 *H. leticiae*, fig. 6 *H. cerri*, fig. 7 *H. columbiensis*, fig. 8 *H. brasiliensis*, fig. 9 *H. centralensis*, a) front body, b) antennae, c) aedeagus (scale of a – 1 mm, scale of b and c 0.1 mm).



***Holotrochus glabrinotus* n. sp.**

(Plate 3, Fig. 1)

Description: Length 4.1 mm. Head 0.45 mm long, 0.5 mm wide, antennae ferruginous, 2nd segment globular, 3rd segment  $1\frac{1}{2}$  times as long as the 2nd, 4th and 5th segments quadrate, the following segments transverse, head black, shining, sparsely and finely punctate, clypeus with very fine transverse undulate microsculpture, but shining, eyes as long as the temples, with netlike microsculpture, dull. Pronotum 0.8 mm long, 1.0 mm wide, black, reddish at base and at apex, shining, punctation fine and sparse, between this a very fine microsculpture, laterally and apically margined, widest in the apical third, narrowed straightly to the posterior edge, the apical angles swellingly pronounced by the course of the lateral margin, epipleura polished. Elytra 0.8 mm long, 1.05 mm wide, red, with an indistinct shadow on the disc, finely and sparsely punctate, finely coriaceous, therefore less shining than the pronotum, epipleura red, polished, metasternum black, with netlike microsculpture, dull. Abdomen brown, 4th to 6th visible tergites reddish, anterior 4 visible tergites with netlike microsculpture, the 5th and 6th visible tergites with round meshed microsculpture, dull, laterally with very sparse yellow hairs. Legs yellow. Male: aedeagus plate 3, fig. 1 c.

*H. glabrinotus* is very similar to *H. vianai* according to colour and structure of the antennae and only to be differentiated by the structure of the aedeagus.

Holotype: male: Ven. Aragua, Tiara, 50 km S. W. Caracas, 22–25 II 1971, leg. Peck, 1500 m.

Paratypes: 6 males and 10 females: Ven. Aragua, Tiara, 50 km S. W. Caracas, 22–25 II 1971, leg. Peck, 1500 m.

1 male and 3 females: Brit. Hond. Caves Branch, 29 VII–15 VIII 1972, leg. S. & J. Peck.

The types are deposited in the B. R. I.

***Holotrochus latinotus* n. sp.**

(Plate 3, Fig. 2)

Description: Length: 4.6 mm. Head 0.5 mm long, 0.7 mm wide; antennae reddish, 2nd segment globular, 3rd segment conical,  $1\frac{1}{2}$  times as long as the 2nd, 4th and 5th segment quadrate, the following transverse; head black, shining with fine and sparse nearly invisible punctation, clypeus with fine transverse undulate ground sculpture, only dull at the extreme apex, eyes as long as the temples, these with netlike microsculpture, dull. Pronotum 0.75 mm long, 1.1 mm wide, black, shining, base reddish, very finely and sparsely, nearly invisibly punctate; laterally and apically margined, anterior angles broadly rounded, widest in the apical third, hardly narrowed to the base; epipleura polished. Elytra 0.9 mm long, 1.1 mm wide, black, reddish to each side of the suture, feebly and sparsely punctate, very finely coriaceous, dull; epipleura polished; metasternum polished. Abdomen black, tergites apically reddish, with netlike microsculpture, dull, 1st

to 4th visible tergites only laterally yellow hairy, 5th and 6th visible tergite also dorsally with long yellow hairs. Legs yellow. Male aedeagus (plate 3, fig. 2c).

By the hairy 5th and 6th visible tergites of the abdomen this species can be differentiated from the other species of the Simplex-Group and it seems related to the Synthetic-Group, being differentiated by the narrow pronotum.

Holotype: male: Colombia, 1 000' Anchicaya VII. 22. 1970, leg. J. M. Campbell.

Paratypes: 2 females: Colombia, 1 000' Anchicaya VII. 22. 1970, leg. J. M. Campbell.

The types are deposited in the B. R. I.

Further specimen have been found in the M. C. Z. from Panama, Cerro Campana 1 200' Feb. 76 leg. A. Newton.

### **Holotrochus nationes n. sp.**

(Plate 3, Fig. 3)

Description: Length: 4.5 mm. Head 0.5 mm long, 0.6 mm wide; antennae red, 2nd segment globular, 3rd segment conical,  $1\frac{1}{2}$  times as long as the 2nd, the following 3 segments quadrate, 7th to 10th segment transverse; head black, polished, distinctly and sparsely punctate, clypeus with feeble, transverse undulate microsculpture, shining, eyes hardly shorter than the temples, these and the neck with netlike microsculpture, dull. Pronotum 0.7 mm long, 1.0 mm wide, black, apically and posteriorly reddish, shining, with distinct and sparse punctation, a small midline without punctures, laterally distinctly margined, the anterior edge only weakly margined; epipleura polished. Elytra 0.9 mm long, 1.0 mm wide, ferruginous at the base and at the apex and laterally to the suture reddish, distinctly punctate, longitudinally coriaceous, shining; epipleura red, polished; metasternum black with netlike microsculpture. Abdomen black, the tergites apically reddish, distinctly punctate, the base of the tergites with netlike microsculpture, therefore dull in the anterior half, the apex of tergites polished, distinctly but finely yellow hairy, without hairs in the midline. Legs yellow. Male aedeagus (plate 3, fig. 3c).

*H. nationes* is very similar to *H. glabrinotus* and *H. vianai* and can only be differentiated by the structure of the aedeagus.

Holotype: male: Brazil D. F. 1000 m, Parque Nacional, III-9-1970, leg. J. M. Campbell.

The type is deposited in Museum of Zoology, Universidade de São Paulo, São Paulo, Brazil.

### **Holotrochus montepius n. sp.**

(Plate 3, Fig. 4)

Description: Length: 4.5 mm. Head 0.5 mm long, 0.7 mm wide; antennae ferruginous, 2nd segment globular, 3rd segment conical,  $1\frac{1}{2}$  times as long as the 2nd, 4th seg-

ment quadrate, the following segments transverse; head black, shining, very finely and sparsely punctate, eyes big, a little bit longer than the temples, these with a netlike microsculpture, dull. Pronotum 0.8 mm long, 1.1 mm wide, black, reddish at the base, shining, very finely and very sparsely punctate, widest in the middle, hardly narrowed to the posterior edge and more narrowed to the apex, laterally distinctly margined, anterior edge margined except in the middle; epipleura polished. Elytra 1.0 mm long, 1.1 mm wide, ferruginous, very finely and sparsely punctate, polished but very finely coriaceous and therefore less shining than the pronotum; epipleura and metasternum black, polished. Abdomen reddish brown, the apical margin of tergites red, very feebly and sparsely punctate, the base of tergites with netlike microsculpture, dull, apically shining, finely yellow hairy, a midline without hairs. Legs reddish yellow. Male aedeagus (plate 3, fig. 4c).

*H. montepius* is very similar to *H. glabrinotus*, *H. nationes*, and *H. vianai*. It can be differentiated by the bigger eyes and the very finely punctate and therefore very shining pronotum. A definite determination is only possible by the structure of the aedeagus.

Holotype: male: Mex. Montepio, nr. Catemaco, V. C. VI-19-1969, leg. Bright & Campbell.

The type is deposited in B. R. I.

#### ***Holotrochus newtoni* n. sp.**

(Plate 2, Fig. 4)

Description: Length 4.3 mm; Head 0.4 mm long, 0.55 mm wide; antennae dark brown, 2nd segment globular, 3rd segment conical twice as long as the 2nd, 4th segment quadrate, 5th to 10th segment wider than long; head black, polished, sparsely punctate; eyes as long as the temples, these with transverse netlike microsculpture. Pronotum 0.7 mm long, 0.8 mm wide; black, polished, sparsely punctate, widest at the anterior edge, posteriorly slightly narrowed, anterior edge margined except a small space in the middle; hind angles rounded, epipleura polished. Elytra 0.8 mm long, 0.85 mm wide; black, polished, sparsely but coriaceously punctate. Abdomen with netlike microsculpture, slightly shining, laterally with fine yellow hairs. Legs brown. Male aedeagus plate 2, fig. 3c.

This species is only distinguished from the related species of the Simplex-group by the structure of its aedeagus.

Holotype: 1 ♂: Mexico, Veracruz, Canyon Rio Metlac, near Fortin, 3200 ft. VII-28-VIII-1-1973, A. Newton collector (berlese, litter tropical evergreen forest).

Paratypes: 3 ♂, 9 ♀: Mexico, Veracruz, Canyon Rio Metlac near Fortin 3200 ft. VII-28-VIII-1-1973; 1 ♀: Mexico: Puebla 5 mi NE Teziutlan, 5000 ft. cloud forest VII-16-20-1973.

1 male: Mexico: Puebla 5mi NE Teziutlan, 5000 ft. cloud forest VII16-20 1973; 3 females: Mexico: Oaxaca 1mi E Reforma near Tuxtepec VIII 12-15 1973; 7 males,



7 females: Panama: Canal Zone, Barro Colorado, Feb. 4, 6, 12 1976, leg. A. Newton (litter under old tree and vine fall); 1 male, 1 female: Panama: Canal Zone, Achiote, 9mi SW Gatun VI 19 1976, leg. A. Newton; 2 males, 1 female: Panama: Barro Colorado, Canal Zone, Jan. 19 1968, coll. Mac Fadyen, II/19–III/9 1975 leg. Lawrence, July 1969 leg. Lawrence, B. & T. Hlavac (leaf litter forest floor).

**Holotrochus convertus n. sp.**

(Plate 2, Fig. 3)

Description: length 4.6 mm. Head 0.4 mm long, 0.65 mm wide; antennae dark brown, 2nd segment globular, 3rd segment conical twice as long as the 2nd, 4th to 10th segments strongly transverse; head black, shining, labrum red, punctuation fine and sparse; eyes as long as the temples, these with transverse netlike groundsculpture. Pronotum 0.75 mm long, 1.0 mm wide; black, base indistinctly reddish, shining, finely and sparsely punctate, microsculpture extremely slight and round mashed, widest in the middle and convexly narrowed to the posterior and anterior edge respectively, anterior edge margined, epipleura polished. Elytra 1.0 mm long, 0.9 mm wide, black, shining, with fine and sparse punctuation, epipleura polished. Abdomen black, slightly shining, the 5th visible tergite distally reddish, laterally with fine yellow hairs. Legs red. Male aedeagus as on plate 2, fig. 3 c.

This species belongs to the Simplex-group according to the laterally hairy abdomen and the length.

Holotype: 1 ♂: Panama, Canal Zone, Barro Colorado, Feb. 4, 1976, leg. A. Newton (under bark, rotting log).

Paratypes: 3 ♂, 8 ♀: Panama: Canal Zone, Barro Colorado, Feb. 2 and 11 1976, leg. A. Newton (under bark, rotting log).

The holotype and the paratypes are deposited in the Museum of Comparative Zoology, Cambridge (U.S.A.).

4. Syntheticus-Group (*syntheticus*, *laticollis*, *antennatus*, *poundi*, *leticiae*) of size 3.6–5.0 mm, with depressions at the hind angles of the pronotum, relatively wide pronotum, totally hairy abdomen.

**Holotrochus leticiae n. sp.**

(Plate 3, Fig. 5)

Description: Length 3.6 mm. Head 0.4 mm long, 0.6 mm wide; antennae brown, 2nd segment globular, 3rd segment conical, 1/2 longer than the 2nd segment, 4th to 6th segment quadrate, 7th to 10th segment transverse; head black, shining, with few coarse punctures and more fine punctures, laterally to the eyes impunctate, eyes big and projecting, longer than the temples, these with netlike microsculpture, dull. Pronotum 0.6 mm

long, 0.85 mm wide, black, the base reddish, hind angles red brown, with laterally margined depressions, anterior angles impunctate, disc punctate, apically with fine punctures to the base with coarser punctures, laterally and apically margined, base not margined; epipleura polished. Elytra 0.5 mm long, 1.05 mm wide, reddish brown shining, finely co-

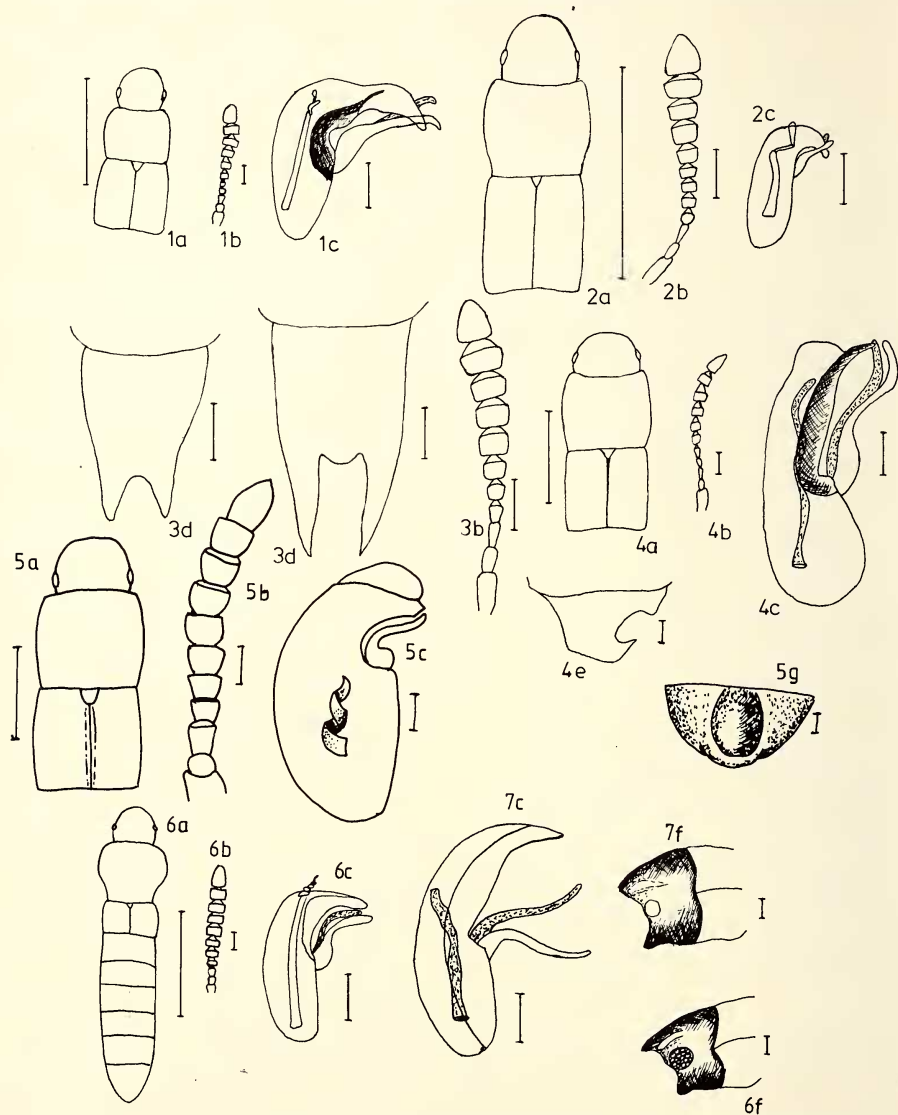


Plate 4: Fig. 1 *Holotrochus hyleae*, fig. 2 *H. pecki*, fig. 3 *H. schubarti* (left of South Brazil, right of Colombia, antennae of the Colombian specimen), fig. 4 *H. geraldii*, fig. 5 *H. franckei*, fig. 6 *Mimosotrochus pecki*, fig. 7 *M. columbinus*, a) front body, b) antennae, c) aedeagus, d) 6th visible abdominal tergite of male, e) lateral view of pronotum, f) lateral view of head, g) last sternite of male (scale of a – 1 mm, scale of b to g – 0.1 mm).

riaceous and therefore less shining than the pronotum; epipleura polished; metasternum with netlike microsculpture, dull. Abdomen black, the apex of tergites reddish, with netlike microsculpture, dull, completely but sparsely covered with yellow hairs. Legs brown. Male aedeagus (plate 3, fig. 5c).

*H. leticiae* is smaller than the other species of the Syntheticus-Group and can be differentiated from them by the big projecting eyes.

Holotype: male: Colombia, Amaz. 7 km N. W. Leticia, 20–25 II 1972, leg. S. & J. Peck, forest litter, Ber. 230.

Paratypes: 4 females: Colombia, Amaz. 7 km N. W. Leticia 20–25 II 1972, leg. S. & J. Peck, forest litter, Ber. 230; male: Colombia, Amaz. Leticia VII-10-1970, leg. J. M. Campbell; female: S. Isabel do Morro, I. Bananal Goias, Brazil, VI-1961, leg. Alvarenga.

The holotype is deposited in the B. R. I., paratypes are in the B. R. I. and in the Museum of the Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil.

5. *Cylindrus*-Group (*cylindrus*, *smithi*, *milleri*, *similis*, *centralis*, *volvulus*, *geraldi*) of size 3.5–6.0 mm, with anterior edge of pronotum not margined, pronotum with a netlike ground sculpture or a characteristic longitudinal ground sculpture and aedeagus with a long spiral endophallus.

#### **Holotrochus geraldii n. sp.**

(Plate 4, Fig. 4)

Description: Length 4.5 mm. Head 0.4 mm long, 0.6 mm wide; antennae reddish yellow, 2nd segment longer than wide, 6th and 7th segment quadrate, 8th to 10th segment transverse; head black, very finely and sparsely punctate, shining, clypeus with feeble netlike microsculpture, shining, temples as long as the eyes, with netlike ground sculpture, dull. Pronotum 0.8 mm long, 1.0 mm wide, black, finely and sparsely punctate, with longitudinal microsculpture, poorly shining, laterally margined, both anterior and posterior edge not margined, widest in the middle, sides rounded; epipleura polished; prosternum short and with abruptly elevated process. Elytra 0.9 mm long, 1.0 mm wide, black, with fine and sparse punctuation and finely coriaceous, nearly dull; epipleura polished; metasternum polished. Abdomen black, impunctate, with netlike microsculpture, slightly shining, 5th tergite apically red. Legs red brown. Male aedeagus (plate 4, fig. 4c).

*H. geraldii* is related to *H. milleri* and *H. cylindrus* by the microsculpture of the head, but can be differentiated from *H. milleri* by its length and from *H. cylindrus* by the structure of the prosternum.

Holotype: male: Jamaica, St. Ann. P. 4mi S. Monique 28 XII 1972, leg. J. Peck 2500'.

Paratype: female: Jamaica, St. Ann. P. 4 mi S. Monique 28 XII 1972, leg. J. Peck, 2500'.

The types are deposited in the B. R. I..

6. Minor-Group (*minor*, *inpai*, *ingae*, *pumilus*, *trinitatis*, *acromyrmicis*, *hyleae*, *cerri*, *pecki*) of size 2.5–3.0 mm, with a more or less shining abdomen and endophallus of aedeagus with a basal straight and an apical spiral part.

### ***Holotrochus hyleae* n. sp.**

(Plate 4, Fig. 1)

Description: Length 2.5 mm. Head 0.3 mm long, 0.4 mm wide; antennae red, 2nd segment globular, 3rd segment conical, as long as the 2nd, 4th to 10th segment transverse, 7th to 11th segment together like an elongated club; head black, very shining, punctuation strong, but sparse, the distance between the punctures 2 to 3 times as long as the diameter of the punctures, eyes as long as the temples, these with a netlike ground sculpture, dull. Pronotum 0.45 mm long, 0.55 mm wide, black, reddish at the base, shining, strongly, but sparsely punctate, similar to the head, widest in the middle, sides rounded, laterally and apically margined; epipleura polished. Elytra 0.55 mm long, 0.6 mm wide, black, at the base and apically reddish, shining, punctuation like on the pronotum, with coriaceous punctures, laterally to the suture; epipleura polished, metasternum with netlike microsculpture, dull. Abdomen black, the apex at the anterior tergites reddish, 6th tergite totally red, distinctly punctate like on the pronotum, with netlike microsculpture, meshes of the microsculpture narrow at the base of tergites, wider at the apex of tergites, therefore abdomen slightly shining. Legs yellow. Male aedeagus (plate 4, fig. 1c).

*H. hyleae* is the smallest species within the Minor-Group. It can be differentiated from the other species of the Minor-Group by the only slightly shining abdomen, but definitely only by a study of the aedeagus.

Holotype: male: Colombia, Amaz. 7 km N. Leticia, 20–25 II 1972, leg. S. & J. Peck, forest litter, Ber. 230.

The type is deposited in the B. R. I..

### ***Holotrochus pecki* n. sp.**

(Plate 4, Fig. 2)

Description: Length 2.75 mm. Head 0.28 mm long, 0.45 mm wide; antennae red, 2nd segment globular, 3rd segment conical, 1½ times as long as the 2nd, 4th and 5th segment globular, 6th to 11th segment together like an elongated club; head black, shining, finely and sparsely punctate, eyes as long as the temples, these with a netlike microsculpture, dull. Pronotum 0.45 mm long, 0.65 mm wide, black, the base reddish, shining, finely and sparsely punctate, sides margined, anterior edge only margined in the outer

third, widest in the middle, sides rounded, the posterior forth emarginated; epipleura polished. Elytra 0.55 mm long, 0.65 mm wide, reddish-brown, distinctly punctate, punctuation more or less coriaceous, shining; epipleura polished; metasternum polished. Abdomen black, distinctly punctate, by the round meshed ground sculpture poorly shining. Legs yellow. Male aedeagus (plate 4, fig. 2c).

Within the Minor-Group the species can be mixed up with *H. acromyrmicis* and *H. hyleae* by its short length, but *H. pecki* can be easily differentiated from all other species of the Minor-Group by its heart-shaped pronotum.

Holotype: male: Colombia, Amazonas, Leticia 25 II 1972, leg. S. & J. Peck, sifting old termite nest.

The type is deposited in the B. R. I..

### **Holotrochus cerri n. sp.**

(Plate 3, Fig. 6)

Description: Length 3.3 mm, Head 0.35 mm long, 0.5 mm wide; antennae reddish brown, 2nd segment globular, 3rd segment conical,  $1\frac{1}{2}$  times as long as the 2nd, 4th segment quadrate, 5th to 10th segment transverse; head black, finely and sparsely punctate, shining, clypeus with fine transverse coriaceous microsculpture, temples  $1\frac{1}{2}$  times as long as the eyes, with netlike microsculpture, dull. Pronotum 0.6 mm long, 0.75 mm wide, the base reddish, finely and sparsely punctate, shining, laterally margined, anterior edge except the middle margined, the sides more or less parallel; epipleura polished. Elytra 0.65 mm long, 0.75 mm wide, black, the base reddish, finely and sparsely punctate, finely coriaceous, less shining than the pronotum; epipleura reddish, shining; metasternum red, polished. Abdomen black, the tergites apically red, finely punctate, with netlike microsculpture, slightly shining, laterally with short and fine yellow hairs. Legs yellow. Male aedeagus (plate 3, fig. 6c).

Within the Minor-Group similar to *H. ingae* by the form of the pronotum, the punctuation of the elytra and the structure of the antennae. From this species only to be differentiate by the study of the aedeagus.

Holotype: male: Panama, Cerro Campana, 2900' VII 2. 1970, leg. J. M. Campbell.

Paratypes: 2 females: Panama, Cerro Campana, 2900' VII 2. 1970 leg. J. M. Campbell.

The types are deposited in the B. R. I..

7. Brasiliensis-Group (*brasiliensis*, *columbiensis*, *centralensis*) of size 3–4 mm, with elytra shorter than pronotum and abdomen hairy.

***Holotrochus columbiensis* n. sp.**

(Plate 3, Fig. 7)

Description: Length 4.9 mm. Head 0.4 mm long, 0.6 mm wide; antennae reddish brown, 2nd segment globular, 3rd segment conical, twice as long as the 2nd, 4th and 5th segment quadrate, 6th to 10th segment transverse; head dark brown, shining, finely and sparsely punctate, with very fine netlike ground sculpture, labrum quadrate, eyes short, temples twice as long as the eyes, with netlike ground sculpture, dull. Pronotum 0.7 mm long, 1.0 mm wide, brown, hind angles lightened, very finely and sparsely punctate, shining, with nearly invisible, indistinct micropunctuation, sides parallel, only in the anterior third narrowed to the anterior edge, laterally and apically margined, anterior angles impunctate; epipleura polished. Elytra 0.5 mm long, 1.05 mm wide, ferruginous, finely coriaceous, therefore less shining than the pronotum, punctuation indistinct, lateral margin broad and distinct; epipleura polished; metasternum with netlike microsculpture, dull. Abdomen brown, tergites apically ferruginous, shining, with netlike ground sculpture, finely punctate and yellow hairy. Legs yellow. Male aedeagus (plate 3, fig. 7c).

In comparison to *H. brasiliensis* the elytra are relatively shorter and the eyes are smaller. The aedeagi are distinctly different (male aedeagus of *H. brasiliensis* plate 3, fig. 8c).

Holotype: male: Colombia, Valle Soladito, VII 20. 1970, 6700', leg. J. M. Campbell.

Paratypes: 1 male and 3 females: Colombia, Valle Soladito, VII 20. 1970, 6700', leg. J. M. Campbell.

The types are deposited in the B. R. I..

***Holotrochus centralensis* n. sp.**

(Plate 3, Fig. 9)

Description: Length 4.2 mm. Head 0.35 mm long, 0.6 mm wide; antennae dark brown, 2nd segment oval, 3rd segment conical, 4th segment quadrate, 5th to 10th segments wider than long; head black, polished, with sparse and fine punctuation, eyes as long as temples, with transverse reticulate groundsculpture. Pronotum 0.7 mm long, 0.9 mm wide; dark, polished plate distinctly convex, widest anteriorly slightly narrowed to the base, apically margined, sparsely and finely punctate, hind angles slightly prominent posteriorly, therefore base slightly emarginate, before the hind angles with slight depressions, epipleura polished. Elytra 0.7 mm long, 0.9 mm wide; black, polished, widest posteriorly, epipleura polished. Abdomen black, dull, with netlike groundsculpture, with yellow hairs. Legs brown. Male aedeagus on plate 3, fig. 9c.

This species is very similar to *H. brasiliensis* but distinctly differentiated by the structure of the aedeagus. The elytra are a little bit longer than those of *H. brasiliensis*.

Holotype: 1 ♂ Mexico: Chiapas, 8 mi N. Pueblo Nuevo, Solistahuacan 6000', VIII 26. 27. 1973, A. Newton collector (berlese, cloud forest, leaf litter).

Paratypes: 4 ♂, 10 ♀, Mexico: Chiapas, 8 mi N. Pueblo Nuevo, Solistahuacan, 6000', VIII 26. 27. 1973, A. Newton collector. 6 ♂, 8 ♀, Mexico: Chiapas, 6.6 mi W. El Bosque 4800', VIII 29. 1973, leg. A. Newton (berlese, cloud forest, leaf litter).

The holotype and the paratypes are deposited in the Museum of Comparative Zoology, Cambridge (U.S.A.).

**Holotrochus lineatocollis n. sp.**

(Plate 2, Fig. 6)

Description: Length 4.3 mm. Head 0.4 mm long, 0.65 mm wide; antennae reddish brown, 2nd segment short conical, 4th to 10th segments transverse; head black, polished, sparsely and finely punctate; eyes as long as the temples, these with netlike transverse microsculpture. Pronotum 0.75 mm long, 0.9 mm wide; black, polished, punctation sparse and fine, microsculpture extremely fine and round mashed, anterior edge and base reddish, widest at the anterior edge, continuously narrowed to the base; lateral margin elevated before the anterior angle to the anterior margin, thus the anterior angle not margined. Elytra 0.9 mm long, 0.9 mm wide; black, polished, finely and sparsely punctate, microsculpture coriaceous, epipleura polished. Abdomen black, slightly shining, the hind edge of the 5th visible tergite reddish, laterally with few yellow hairs. Legs red. Male aedeagus on plate 2, fig. 6.

This species resembles the *H. lineatus* due to the lateral margin of the pronotum of the male, which however is different from that species as well as the structure of the aedeagus.

Holotype: 1 ♂ Canal Zone: Is. Barro Colorado, II/19 – III/9 1975, leg. Lawrence (under bark, rotting logs).

Paratypes: 2 ♂, 3 ♀, Canal Zone: Is. Barro Colorado, II/19 – III/9 1975, leg. Lawrence (under bark, rotting logs).

The holotype and the paratypes are deposited in the Museum of Comparative Zoology, Cambridge.

**Holotrochus obstrusus n. sp.**

(Plate 2, Fig. 5)

Description: Length 4.5 mm. Head 0.4 mm long, 0.6 mm wide; antennae red, 2nd segment globular, 3rd segment conical twice as long as the 2nd, 4th segment quadrate, 5th segment quadrate but distinctly wider than the 4th, 6th to 10th segments wider than long; labrum red; head black, polished, finely and sparsely punctate; eyes a little bit shorter than the temples, these with netlike groundsculpture. Pronotum 0.85 mm long, 0.95 mm long, black, base indistinctly reddish, polished, punctation fine and sparse, sides parallel, lateral margin deflected under the lateral edge in the anterior third, than elevated before the anterior edge, the sides of pronotum therefore appear emarginate in the anterior

third, anterior edge not margined, epipleura polished. Elytra 0.85 mm long, 1.0 mm wide, black, polished, with coriaceous microsculpture, epipleura polished. Abdomen black, the hind edge of tergites indistinctly reddish, dull, with netlike microsculpture, laterally with yellow hairs. Legs red. Male aedeagus on plate 2, fig. 5c.

*H. obstrusus* resembles *H. picescens* due to the structure of the lateral margin of the pronotum, but is clearly differentiated by the usual structure of the clypeus and the aedeagus.

Holotype: 1 ♂, Panama: Cerro Campana, 3200', Feb. 1976 leg. A. Newton (berlese, cloud forest, leaf litter).

Paratypes: 3 ♂, 4 ♀: Panama: Cerro Campana, 3200', Feb. 1976 leg. A. Newton (berlese, cloud forest, leaf litter).

The holotype and the paratypes are deposited in the Museum of Comparative Zoology, Cambridge (U.S.A.).

### ***Holotrochus marginatus* SHARP 1882**

(Plate 2, Fig. 8c)

This species was known only by the type specimen from Sharps collection. In the collection of the Museum of Comparative Zoology, Mass., U.S.A. was a number of specimen from Mexico: Veracruz, Canyon Rio Metlac, July/Aug. Male aedeagus on plate 2, fig. 8c.

### ***Holotrochus politus* SHARP 1882**

(Plate 2, Fig. 7)

This species as well could be found in a number of specimen in the collection of the M. C. Z. from Mexico. It can be easily differentiated beside the characteristics of the already known description by the characteristic spermatheca of the female plate 2, fig. 7g. Male aedeagus on plate 2, fig. 7c.

### ***Holotrochus similis* IRMLER 1981**

In the M. C. Z. from Panama: Canal Zone.

### ***Holotrochus trinitatis* (BLACKWELDER 1943)**

In the M. C. Z. from Mexico, Chiapas NW Ocozocautla, April, and Panama, Canal Zone.

### ***Holotrochus milleri* IRMLER 1981**

In the M. C. Z. from Panama, Canal Zone.



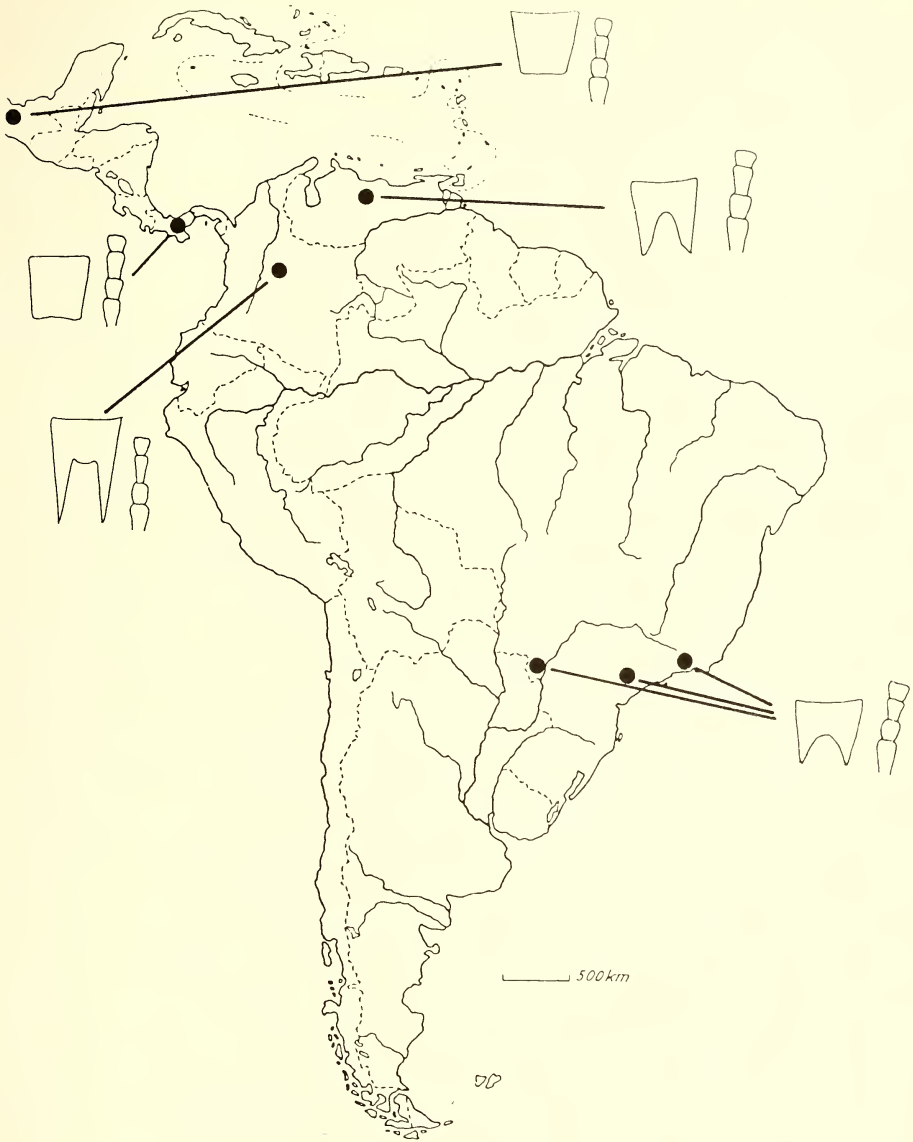


Plate 5: Map of Central and South America with localities of the different forms of *H. schubarti* (figured 6th visible tergite of males and the 4 basal segments of antennae).

**Holotrochus schubarti** IRMLER 1981

(Plate 5, 4, Fig. 3)

Within the collection of the B. R. I. and the M. C. Z. are specimens of Colombia, Panama, Venezuela, and Mexico which based on the structure of the aedeagus are identical

to the South Brazilian *H. schubarti* Irmeler, but differ according to the form of the 7th visible tergite of males and the structure of the antennae. Especially the specimen of Colombia differ in the following characters (plate 4, fig. 3):

1. Length 3.5 mm
2. Antennae longer, 2nd segment globular. 3rd segment 1½ times longer than the 4th.
3. 7th visible tergite of male with long lateral processes, which are at least twice as long as those of the *H. schubarti* of South Brazil.

The specimen of Venezuela have an intermediate form between those of Colombia and South Brazil, whereas those of Panama and Mexico have no processes at the 7th visible tergite in males and antennae are shorter (plate 5).

***Holotrochus franckei*** (WENDELER 1955)

(Plate 4, Fig. 5)

Length: 5.5 mm; Head 0.4 mm long, 0.8 mm wide; antennae 2nd segment globular, 3rd 1½ as long as 2nd, 4th and 5th quadrate, 6th to 10th transverse; head black, shining, sparsely but distinctly punctate, clypeus coriaceously punctate, temples above a line from the upper edge of the eyes to the neck dull, with reticulate microsculpture, beyond this line without microsculpture, shining. Pronotum 1.0 mm long, 1.2 mm wide, black, shining, with distinct punctation and very feeble depression at the basal edges. Elytra 1.0 mm long, 1.2 mm wide, with coriaceous punctation, moderately shining. Abdomen laterally hairy, dorsally dull with netlike microsculpture, last tergite biforked.

This species was wrongly described by WENDELER (1955) as *Lispinus franckei*, but is clearly a *Holotrochus* species, similar to *H. plaumanni*, but distinguished by the different structure of the aedeagus and the clypeus.

Holotype: 1♂: Brazil, Nova Teutonia, leg. Fritz Plaumann, in N.H.M. Berlin.

***Holotrochus lundgreni*** IRMLER **nov. nom.**

*H. opacus* Irmeler 1981 nec *opacus* Bernhauer 1934

Fortunately Dr. Lundgren, Normal, Illinois, U.S.A. has called my attention to the homonymy of *H. opacus* Irmeler 1981 with *Holotrochus opacus* Bernhauer 1934. Therefore a new name is necessary which should be as indicated above.

***Holotrochus antennatus*** WENDELER 1955

*Lispinus setosus* WENDELER 1955 **nov. syn.**

The *Lispinus setosus* described by Wendeler 1955 is identical with *Holotrochus antennatus* Wendeler 1955.

**Holotrochus osorioides** (WENDELER 1955) **nov. comb.***Lispinus osorioides* WENDELER 1955

This species was wrongly described by Wendeler as a species of *Lispinus* but belongs clearly to the genus *Holotrochus*. The only type specimen is a female. Thus no definite taxonomic determination is possible, but it seems to be a real species.

Holotype: 1 ♀, Brazil, Nova Teutonia leg. F. Plaumann, deposited in the Naturhistorisches Museum Berlin.

**Mimotrochus n. gen.**

Description: According to the overall form among the neotropical Osoriini this genus is between the genus *Holotrochus* and *Mimogonus* respectively *Mimogonia*. It also resembles the Indian *Paragonus* FAUVEL 1895 concerning to the hairy body and the emarginated pronotum but differs in the palpa of the maxillae which are short in *Paragonus* and of normal form in *Mimotrochus*. The pronotum is much more slender in *Mimotrochus* and the elytra are much shorter than for *Paragonus*. *Mimotrochus* resembles as well the genus *Paratrochus* MCCOLL 1982 from New Zealand due to the small eyes and the short elytra, but *Mimotrochus* is much more hairy and the pronotum is emarginated.

The body of *Mimotrochus* is totally covered with fine hairs, eyes very small, much smaller than the temples, the pronotum broad, laterally margined, sides emarginate at base like in the genus *Mimogonus* and *Mimogonia*, with a shining midline, the front coxae long, pearshaped, front tibiae at the anterior edge with few spines, at the interior edge slightly emarginate and there with a row of short hairs. Elytra shorter than the pronotum. Middle tibiae at the exterior edge with few spines, hind tibiae only hairy, tarsae with 5 segments, abdomen not margined. The type specimen is the holotype of the following species.

**Mimotrochus pecki n. sp.**

(Plate 4, Fig. 6)

Description: Length 2.9 mm. Head 0.3 mm long, 0.5 mm wide; antennae red, 2nd segment globular, 3rd segment conical, as long as the 2nd, 4th segment strongly transverse, 3 times as wide as long, the segments 5 to 10 transverse as well but with increasing length, the 10th segment nearly quadrate; head black, densely and distinctly punctate, the distance between the punctures smaller than the diameter of punctures, within each puncture a long yellow hair, the hairs are orientated to the middle, above the eyes with a polished slight bulge, eyes small existing of about 15 to 20 omatides, temples with net-like microsculpture, dull; neck impunctate, polished. Pronotum 0.45 mm long, 0.7 mm wide, black, reddish at the base, shining, distinctly and densely punctate, like the head with a broad impunctate midline, with yellow hairs orientated to the midline, widest at the middle, laterally distinctly margined, the anterior edge only margined near the front angles; epipleura polished. Elytra 0.3 mm long, 0.65 mm wide, black, apically reddish,

punctuation like on the pronotum, with yellow hairs orientated to the middle, sides margined and with granulation; epipleura polished with one row of hairs; metasternum with netlike microsculpture, dull. Abdomen ferruginous, shining, punctuation like on the pronotum and the elytra, with yellow hairs orientated to the back. Legs yellow. Male aedeagus (plate 4, fig. 6c).

Holotype: male: Colombia, Qbda Susamaco, 23 km W. Villavicencio, 3–5 III 1972, leg. S. & J. Peck, 1000 m T912–914.

Paratypes: Colombia, Qbda Susamaco, 23 km W. Villavicencio, 3–5 III 1972, leg. S. & J. Peck, 1000 m t912–914.

The Holotype is deposited in the B. R. I., Paratypes are in B. R. I., and in my collection.

### ***Mimotrochus columbinus* n. sp.**

(Plate 4, fig. 7)

Description: Length 3.0 mm. Head 0.3 mm long, 0.5 mm wide; antennae yellow, 2nd segment globular, 3rd segment conical, as long as the 2nd, 4th segment transverse, twice as broad as long, the following segments transverse but longer, the 10th segment nearly quadrate; head brown, polished, distinctly and densely punctate, with long yellow hairs orientated to the middle, punctuation above the eyes coriaceous, on each side above the eyes with an impunctate shining bulge, eyes very small, with two big ommatids only, the temples with netlike microsculpture, dull. Pronotum 0.5 mm long, 0.7 mm wide, brown, polished, apically and posteriorly reddish, distinctly and densely punctate, with long yellow hairs orientated to the middle; epipleura polished. Elytra 0.3 mm long, 0.65 mm wide, ferruginous, shining, punctuation like on the pronotum, sides margined and with granulation, with yellow hairs orientated to the back; epipleura polished; metasternum with netlike microsculpture, dull. Abdomen brown, 5th and 6th visible tergites red, distinctly punctate, with yellow hairs orientated to the back, shining. Legs yellow. Male aedeagus (plate 4, fig. 7c).

This species is easily to differentiate from *M. pecki* by the very small eyes.

Holotype: male: Colombia, C. Amara Tequendara VII 6. 1960 7600', leg. J. M. Campbell.

Paratypes: 3 females: Colombia, C. Amara Tequendara VII 6. 1970, 7600', leg. J. M. Campbell.

The types are deposited in the B. R. I.

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